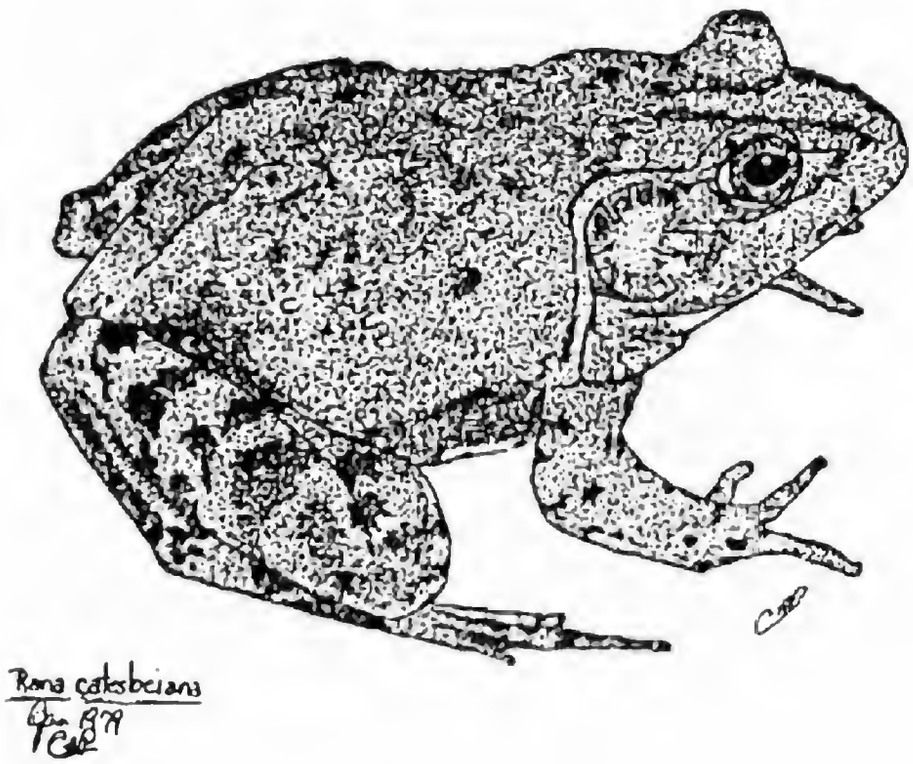
CATESBEIANA



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BULLETIN INFORMATION

Catesbeiana is issued twice a year by the Virginia Herpetological Society. Membership is open to all individuals interested in the study of amphibians and reptiles and includes a subscription to *Catesbeiana* and admission to all meetings.

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EDITORIAL POLICY

The principle function of *Catesbeiana* is to publish observations and original research about Virginia herpetology. Rarely will articles be reprinted in *Catesbeiana* after they have been published elsewhere. All correspondence relative to suitability of manuscripts or other editorial considerations should be directed to Co-editors, *Catesbeiana*, Department of Biology, Liberty University, 1971 University Blvd., Lynchburg, VA 24502.

Major Papers

Manuscripts being submitted for publication should be typewritten (double spaced) on good quality 8½ by 11 inch paper, with adequate margins. Consult the style of articles in this issue for additional information. Articles will be refereed by at least one officer (past or present) of the Virginia Herpetological Society in addition to the editor. All changes must be approved by the author before publication; therefore manuscripts must be submitted well in advance of the March or September mailing dates.

Reprints of articles are not available to authors; however, authors may reprint articles themselves to meet professional needs.

(Editorial policy continued on inside back cover.)

CATESBEIANA

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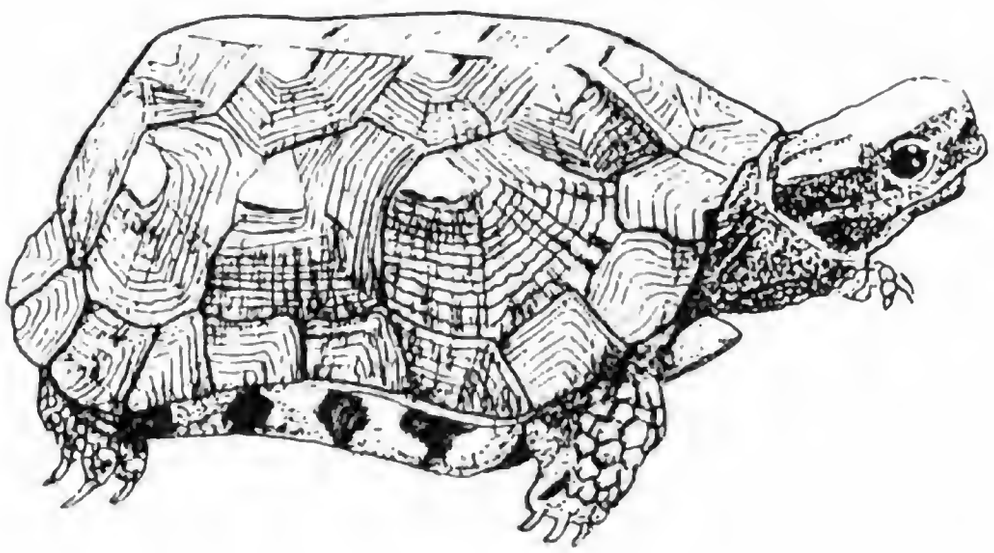
MEETING NOTICE

The Spring 1997 VHS meeting will be held on 9-11 May at the Naval Security Group Activity facility in Chesapeak, VA. See page 25 for details.



Clemmys insculpta
MJP '95

Amphibian and Reptile Survey of the Massanutten Region

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Blacksburg, Virginia 24060

Surrounded and geographically-isolated by the Shenandoah Valley, the Massanutten region is a unique, montane feature rising from the Ridge and Valley Province in northwestern Virginia. Within this region, Massanutten Mountain is the dominant ridge in addition to many smaller ridges such as Short, Green, Powell, and Threetop Mountains. The Massanutten region extends 72.6 km from Front Royal to just southeast of Harrisonburg at an average width of 4.8 km. The region is bordered by the North Fork of the Shenandoah River to the west and the South Fork of the Shenandoah to the east. Passage Creek, the region's largest water body, drains over half of the Massanutten range. Most mountainous areas are publically-owned and managed by the U.S. Forest Service (USFS). Fort Valley within and Shenandoah Valley surrounding the Massanutten region are predominately agricultural and privately owned.

Owing to its geographic isolation, there is a possibility that the Massanutten region may have or had an endemic salamander. Two salamander species, *Plethodon shenandoah* (Shenandoah salamander) and *P. punctatus* (Cow Knob salamander) are found on separate high elevation ridge tops less than 48 km from Massanutten Mountain. *Plethodon shenandoah* occurs only on talus slopes in Shenandoah National Park and *P. punctatus* on Shenandoah and North Mountains along the Virginia-West Virginia border (Conant and Collins, 1991). Because of the rugged terrain, and because the Massanutten region has not been adequately sampled, surveys may possibly discover a unique species.

The Virginia Herpetological Society (VHS) annually selects a site around the state in which to inventory reptiles and amphibians. Survey information is used to determine species presence, distribution, and development of comprehensive species list for the study site. These sites are typically undersurveyed and within a unique portion of the state that can be resurveyed on a routine basis. Based on these criteria, the society chose the Massanutten region to conduct a one day survey in the Spring of 1996.

Study Area

The Massanutten region and its major landscape features are represented in Figure 1. The total area of the Massanutten region is approximately 104,960 ha. USFS ownership is 31,560 ha. Mean annual temperature is 12.8 °C and mean summer temperature is 21.7 °C (USDA 1976). The nearest mountain ranges are the Allegheny Mountains to the west and the Blue Ridge Mountains to the east. Annual precipitation on the western portion of Massanutten is 86.4 cm (Woodstock) and 101.6 cm (Luray) on the eastern slope. The forest type is predominately oak associated with hickory and pine. Ridge top elevations range from 305 to 832 m, with a maximum elevation of 1,007 m at Laird's Knob. Cambrian, Ordovician, Silurian and Devonian sedimentary limestones, shales, and sandstones comprise the rocks within the region. The limestone terrain has resulted in numerous caverns, sinkholes, springs and disappearing streams.

The history of the Massanutten region is detailed in the George Washington Forest Service Plan (USDA 1976). During the 19th century, intensive forest clearing at an estimated 300 ha (750 acres) annually was conducted to provide charcoal for five iron furnaces. Over 100 years of disturbance left a barren landscape with severe erosion and thin soils. Vegetation consisted of brushy pastureland and a few scattered trees. The USFS presently manages the Massanutten region for multiuse, which includes timber production, recreation, and aesthetics.

Methods

On 4 May 1996, the VHS membership conducted an extensive one-day reptile and amphibian survey of the Massanutten region. Survey sites were selected *a prior* with the assistance of representatives from the USFS, the Virginia Department of Game and Inland Fisheries (VDGIF), and VHS officers. Unique habitats such as streams, shale barrens, bogs, ponds, and springs were targeted. With the exception of a few sites on privateland, most sites were easily accessible and on USFS property. Each team, ranging from two to six members, was assigned a group of survey sites. Sites were marked on 7.5 minute USGS topographic maps. Site codes denote survey team, site number, and subsite (e.g., 1-2-B = Survey team 1, Site number 2, Subsite B).

Sample jars, thermometers, and capture devices were provided to each team. Specimens were collected for positive identification by hand, snake

tongs and capture nets. Air and water temperature, weather conditions, and search effort (minutes) were recorded at each site. All specimens were identified, sexed (if possible), and life stage recorded (i.e., egg, larvae, juvenile, and adult). Groups of calling frogs and breeding sites containing aggregations of eggs and larvae were counted as one observation. With the exception of larval amphibians and new county records, all specimens were released at the point of capture. Habitat (micro and macro) and behavior was recorded for each specimen.

Results

Forty-three sites were sampled by six survey teams. These include two sites that were incidental observations. Survey locations are presented in Figure 1 (p. 14-15) and described in Table 1. A total of 10 reptile and 16 amphibian species were collected. An account of each species, as well as habitat, distribution, life stage, and site location is given below.

Anurans

Bufo americanus americanus Holbrook. Adult and tadpole American toads were found at five sites from the southern and northern portions of the survey region. Breeding sites were ephemeral pools, road ruts, and intermittent streams. Adults were found along stream edges and wetlands. Site locations: 1-1-A, 1-5-A, 2-2, 6-1, 7-2-A.

Hyla versicolor (LeConte). Gray treefrogs occurred sporadically throughout the survey area. Two specimens were heard at two separate woodland sites. One frog was found near a spring and the other inhabited a man-made pond. No graytree frog tadpoles were observed. Site locations: 2-3, 3-1, 5-7, 6-2.

Pseudacris crucifer crucifer (Wied). Spring peepers were encountered frequently throughout the survey area. Specimens were heard calling from trees and wildlife ponds. Tadpoles were found at one wetland site along the southern portion of the Massanutten range. Site locations: 1-1-B, 2-2, 3-1, 3-5, 4-2, 5-1, 5-2, 6-1, 6-2, 6-3, 6-4.

Rana catesbeiana Shaw. Bullfrogs occurred moderately across the survey area with tadpoles being the most prevalent life stage. Breeding sites were wildlife ponds and ponds containing fish. One adult was found near a streambank. Site locations: 1-3-A, 2-1-2, 2-2, 6-2, 6-3, 6-5, 6-6.

Rana clamitans melinota (Rafinesque). Green frogs were the most prevalent and widely distributed species in the survey. Adults and juveniles were observed in a variety of habitats including intermittent streams, springs, wildlife ponds and large ponds containing fish.

Tadpoles were found in the shallow areas of ponds and ephemeral pools. Site locations: 1-1-A, 1-1-B, 2-1-1, 2-2, 3-1, 4-2, 5-2, 5-4, 5-7, 6-2, 6-4, 6-5, 6-6, 6-7, 7-2-A.

Rana palustris (LeConte). Adults and juveniles were found in perennial streams, wildlife ponds, and ponds containing fish. One egg mass was near the shallow portion of a pond. Site locations: 1-1-B, 1-5-A, 2-3, 3-1, 4-2, 6-3, 6-5.

Rana sylvatica LeConte. Wood frogs were predominantly found along the northeast portion of Massanutten Mt. near South Fork Shenandoah River. Tadpoles inhabited small, wildlife ponds, springs, streams and the shallow, fishless sections of large ponds. No adult wood frogs were found. Site locations: 2-1-1, 2-3, 4-2, 6-7.

Salamanders

Ambystoma maculatum (Shaw). Spotted salamanders occurred infrequently in the northern and central sections of the survey area. Eggs and larvae were found in standing water of road ruts, wildlife ponds, and the backwater of small streams. A spent egg mass was identified as coming from this species. No adult spotted salamanders were found. Site locations: 1-3-B, 2-1-1, 2-2, 6-3, 6-7.

Ambystoma opacum (Gravenhorst). Larval marbled salamanders were found in an ephemeral pool and a wildlife pond. No adults were observed. Observations represent new county records for Page Co. (J. Mitchell pers. comm.). Unfortunately, no vouchers were collected. Site locations: 4-1, 6-3.

Desmognathus fuscus fuscus (Rafinesque). Northern dusky salamanders were widely distributed and frequently encountered over the survey area. Habitat comprised of wetted, shallow areas of stream edges, seeps, and springs. Only adults and juveniles were found. Site locations: 2-3, 3-1, 3-6, 5-1, 5-10, 6-2, 7-1, 7-1-A, 7-2-A.

Eurycea bislineata bistineata (Green). Two-lined salamanders were generally distributed in the southern half of the Massanutten Mt. range. Adults and juveniles were found under rocks in headwater streams, springs, and seeps. Larval salamanders were found in pools and beaver ponds. Site locations: 3-1, 5-7, 5-10, 6-2, 6-3, 7-1-A, 7-2-A, 7-2-C, 7-8-A.

Gyrinophilus p. porphyriticus (Green). Northern spring salamanders were found at two sites in the southern portion of the Massanutten range. Larval salamanders were observed in springs and wildlife ponds. No adults were collected. Observation may constitute a new county record for the Massanutten region (J. Mitchell pers. comm.). Specimens were submitted to the Virginia Mus. of Nat. History. Site locations: 6-5, 7-1.

Notophthalmus viridescens viridescens (Rafinesque). Red-spotted newts were numerous throughout the survey area. Adults were observed in wildlife and fish ponds, ephemeral pools and a road rut. No larval newts or red efts were observed. Observations at five separate sites in the Page Co. portion of Massanutten Mt. represent new county records for this species (J. Mitchell pers. comm.). No specimens were collected as vouchers. Site locations: 2-1-2, 2-2, 2-3, 4-2, 5-2, 6-2, 6-3, 6-5, 6-7.

Plethodon cinereus (Green). Adult redback salamanders were observed along wooded hillsides and streambanks under logs, rocks, trash and leaf litter. Juveniles were found along streamsides under leaf litter. Site locations: 5-1, 5-4, 5-10, 6-2, 6-4, 7-1-A, 7-2-B.

Plethodon cylindraceus Highton. Adult white spotted salamanders were observed in coniferous and deciduous woodlands in and under rotten logs and rocks. One juvenile was found under a log in a wooded area. Site locations: 2-1-1, 2-1-2, 2-3, 3-1, 3-6, 5-4, 6-4.

Pseudotriton ruber ruber (Latreille). Northern red salamanders occurred infrequently over the survey area. Specimens were observed under rocks and leaf litter in springs, seeps, and along a stream edge. Only adults were found. Site locations: 1-5-A, 2-1-2, 5-7.

Lizards

Eumeces fasciatus (Linnaeus). Two adults (one male and one unsexed) and three unsexed juvenile five-lined skinks were found over the survey area. Specimens were observed basking and under logs in wooded areas. Site locations: 1-5-A, 2-3, 2-5, 5-1, 5-7.

Sceloporus undulatus hyacinthinus (Green). One adult female, two juveniles, and one unidentified age class individual of Northern fence lizards were observed at four separate sites in the northern portion of Massanutten Mt. Specimens were observed in pine forests basking on logs and rocks. A voucher specimen was collected at a later date but was subsequently lost, resulting in no vouchers for Warren County (M. Hayslett pers. comm.). Site locations: 1-5-B, 2-5, 3-6, 6-6.

Snakes

Crotalus horridus (Linnaeus). Timber rattlesnakes were observed at five sites among rocks on ridge tops and talus slopes. To protect this species, detailed locations are not presented in this paper.

Diadophis punctatus edwardsii (Merrem). One specimen of ringneck snake was found along shale barrens. Site location: 5-1.

Elaphe obsoleta obsoleta (Say). Two adult black rat snakes were observed crossing roads at separate sites over the survey area. Site locations: 5-11, 7-7.

Nerodia sipedon sipedon (Linnaeus). Three Northern water snakes were observed. One pair of snakes was observed courting along a log jam of Passage Creek at Elizabeth Furnace. The other specimen was observed basking along a wildlife pond. Site locations: 1-3-A, 6-3.

Regina septemvittata (Say). One queen snake was observed basking on a log jam on Passage Creek. Site location: 1-3-A.

Turtles

Chelydra serpentina (Linnaeus). One common snapping turtle was observed floating in Passage Creek. A second observation was a single specimen in a ridge top vernal pool. Site locations: 1-3-A, 3-1.

Chrysemys picta picta (Schneider). Of the two Eastern painted turtles observed, one was found basking on a log in Passage Creek. The second observation was of a painted turtle surfacing for air in a canal adjacent to the South Fork of the Shenandoah River. Site locations: 1-3-A, 2-4.

Terrapene carolina (Linnaeus). One adult female was observed crossing a road near mixed successional woodland and pasture. Site location: 6-8.

Discussion

Although a one day sampling can only constitute a snapshot of survey conditions, it does provide a baseline for developing a comprehensive species list, and determining the distribution, habitat-use and temporal occurrence of Massanutten's reptiles and amphibians. The survey found three species that were previously undocumented for counties within this region. Review of past species observations found an additional 13 reptiles and 7 amphibians that were not collected but are known or likely to occur within the survey area based on Tobey (1985), Mitchell (1994), and the VDGIF - Fish and Wildlife Information System (Table 2).

The absence of several reptile species, especially snakes, can be explained by weather conditions and habitat characteristics of the survey sites. Overcast and rainy conditions did not favor finding species that would normally be basking in exposed areas. Most habitats were wet and favored those reptiles associated with aquatic habitats such as *Chelydra serpentina* (snapping turtle), *Nerodia sipedon sipedon* (Northern water snake), and *Regina septemvittata* (queen snake). The Massanutten region

is known to harbor several species like *Lampropeltis t. triangulum* (milk snake), *Thamnophis s. sirtalis* (garter snake), and *Sternotherus odoratus* (common musk turtle), which were not collected in this survey. One specimen of *Eumeces inexpectatus* (southeastern five-lined skink) was recorded near the South Fork Shenandoah River in Page County (Mitchell, 1994). Surprisingly, *Coluber constrictor* (Northern black racer) was not found and remains unvouchered within the Massanutten region.

In contrast to reptiles, the survey identified 71% of amphibians known to occur in this area. Frogs were particularly well documented. This may be explained by the abundance of man-made wildlife ponds. While these ponds may enhance frog habitat, it is at the expense of springs and seeps that were once suitable habitat for salamanders. The occurrence of some amphibians and their associated life stage reflects the time-of-year the survey was conducted. A late spring survey fails to collect adult *Ambystoma maculatum* (spotted salamander), adult *Rana sylvatica* (wood frog), and *A. jeffersonianum* (Jefferson salamander) that can easily be found breeding during late winter-early spring. Three amphibians that were expected but not observed in this survey were *Hemidactylium scutatum* (four-toed salamander), *Eurycea longicauda* (longtail salamander), and *Bufo fowleri* (Fowler's toad). *Pseudacris triseriata feriarum* (upland chorus frog) has been recorded in Shenandoah County near Massanutten Mt. (Tobey, 1985).

The historic land-use practices have no doubt adversely affected Massanutten's herpetofauna. Intensive forest clearing and the inevitable heavy erosion and thin soils probably reduced or even extirpated many woodland salamanders. Likewise, stream dwelling salamanders such as *Gyrinophilus porphyriticus* (Northern spring salamander) and *Desmognathus fuscus* (dusky salamander) would have been impacted by excess sediment in springs and streams. Reptiles such as *Crotalus horridus* could have survived by finding refugia in inaccessible rocky areas. Additionally, species possessing high dispersal rates and habitat plasticity such as *Chelydra serpentina* and *Elaphe obsoleta* (black rat snake) probably reinvaded after landuse abuses began to decline. To protect salamander populations, present land-use practices will require the development of the soil matrix, forest canopy, and woody debris on the forest floor (Mitchell et al., 1996). Amphibians and reptiles will also benefit from the protection of springs and seeps.

The information gathered in this survey can be used by land managers and biologists to develop conservation plans to protect critical habitats

and populations of reptiles and amphibians. In order to accomplish this objective, additional surveys of the Massanutten region at different times of the year and habitats will help collect species not found in this survey. Surveys during late winter and early spring should be targeted to collect Ambystomids and early breeding frogs. Summer surveys will be needed to collect reptiles. Intensive surveys will be necessary to collect rare species. Future surveys will be conducted by the VHS to document the herpetofauna of this unique geological feature.

Acknowledgments

The following VHS members were instrumental in conducting the field portion of this study; Mitch Bowling, Kurt Buhlmann, David Dawson, Fred Frenzel, Todd Georgel, Ned Gilmore, Brian Hawley, Tyrone Hayes, Mike Hayslett, Bill Henley, Kathy Henley, McKeever Henley, Chris Hobson, Don Mackler, David McCarthy, Marty Martin, Joe Mitchell, Steve Perry, Preston Poore, Mary Rybitski, Abigail Sattler, Paul Sattler, Jim Scranton, Virginia Shepard, Terry Spohn, Lori West and Gordon Wilson. Thanks to John Coleman, Holden Mason, and Kenneth May, USFS, and Fred Fredzel, VDGIF, for their assistance on initial site selection. Thanks are also due to Greg Harvey, Chris Mattson, and Becky Wajda of the VDGIF-Fish and Wildlife Information System for producing the Massanutten region map, and Shay Garriock, Jess Jones, and Paul Sattler for editorial assistance.

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Table 1. Locations of survey sites for the Virginia Herpetological Society's survey of the Massanutten region on May 4, 1996.

Site number	location
1-1-A	Front Royal Fish Hatchery
1-1-B	Front Royal Fish Hatchery
1-3-A	Passage Creek bridge crossing at Elizabeth Furnace Rec. Area
1-3-B	Elizabeth Furnace Recreation Area
1-5-A	Bear Wallow, Signal Knob Trail
1-5-B	Signal Knob Trail to Buzzard Knob Overlook
2-1-1	Stream near Srt 613 NW of FR 1869
2-1-2	Pond near Srt 613 NW of FR 1869
2-2	FR 1870 on W side Srt 613 and USFS pond on S side of FS 1870
2-3	Ponds and seeps at the end of FS 1953 on W side of Srt 613
2-4	Hazard Mill Recreational Area
2-5	Veach Gap Trail on W side of SRt 613
3-1	Peter's Mill Run, including bog 2.4 km miles on FS 1702
3-5	Wildlife Pond, Srt 758 tp FS 1702 0.8 km on right
3-6	Chalybeate Spring near Milford Gap
4-1	Seak Ford Landing on South Fork Shenandoah River
4-2	Ponds at intersection of Srt 717 and Srt 684 behind old buildings
5-1	Shale barrens - 0.8 km N of Edinburg Gap, Srt 675
5-2	Pond - 0.8 km from gate on left of FS 408
5-4	Pond - FS 374B 0.8 km past gate
5-7	Big Spring-Private church camp, N intersection of Srt 675 & 730
5-10	Headwaters of Mt. Run, 5.1 km N Shenandoah Co. line on FS 30
5-11	Road Crossing - 3.2 km N of FS 370 on FS374.
6-1	Wetlands - Ft. Valley Rd.(FS 274)
6-2	Pond at headwaters of Passage Creek.
6-3	Pond at edge of FS 274
6-4	Pond - Scothorn Gap, 0.8 km from FS 274
6-5	Wildlife pond near Turkey Pen Rd.
6-6	Wildlife pond between Turkey Pen Rd and FS 274
6-7	Wildlife pond at N end of Catback Mountain
6-8	Road crossing, 1.8 km N of Seven Fountains on Ft. Valley Rd.
7-1	Spring near Catherine Furnace, 0.8 km on FS 1618
7-1-A	Spring near Catherine Furnace, 0.8 km on FS 1618
7-2-A	Lower wetland above Pitt Spring, FS 375
7-2-B	Middle wetland above Pitt Spring, FS 375
7-2-C	Upper wetland above Pitt Spring FS 375
7-7	Road crossing, FS 375
7-7-A	Gated Rd. near Cub Run and FS 375

Table 2. Summary of reptiles and amphibians of the Massanutten region. Species are classified those observed, those not observed but expected, and county records based on Tobey (1985), Mitchell (1994), and the VDGIF - Fish and Wildlife Information System.

Species	Observed	Not Observed
Agkistrodon contortrix mokason		*
Ambystoma maculatum	*	
Ambystoma opacum	*	
Ambystoma jeffersonianum		*
Bufo a. americanus	*	
Bufo fowleri		*
Carphophis a. amoenus		*
Chelydra s. serpentina	*	
Chrysemys p. picta	*	
Clemmys insculpta		*
Crotalus h. horridus	*	
Desmognathus f. fuscus	*	
Diadophis punctatus edwardsii	*	
Elaphe g. guttata		*
Elaphe o. obsoleta	*	
Eumeces fasciatus	*	
Eumeces inexpectatus		*
Eurycea b. bislineata	*	
Eurycea l. longicauda		*
Gyrinophilus p. porphyriticus	*	
Hemidactylium scutatum		*
Heterodon platirhinos		*
Hyla versicolor	*	
Lampropeltis t. triangulum		*
Nerodia s. sipedon	*	
Notophthalmus v. viridescens	*	
Opheodrys a. aestivus		*
Plethodon cinereus	*	
Plethodon cylindraceus	*	
Pseudacris c. crucifer	*	
Pseudacris triseriata feriarum		*
Pseudemys rubriventris		*
Pseudotriton r. ruber	*	
Rana catesbeiana	*	
Rana clamitans melinota	*	

HERPS OF MASSANUTTEN REGION

Species	Observed	Not Observed
Rana palustris	*	
Rana sylvatica	*	
Regina s. septemvittata	*	
Sceloporus undulatus hyacinthinus	*	
Sternotherus odoratus		*
Terrapene c. carolina	*	
Thamnophis s. sirtalis		*
Virginia valeriae		*

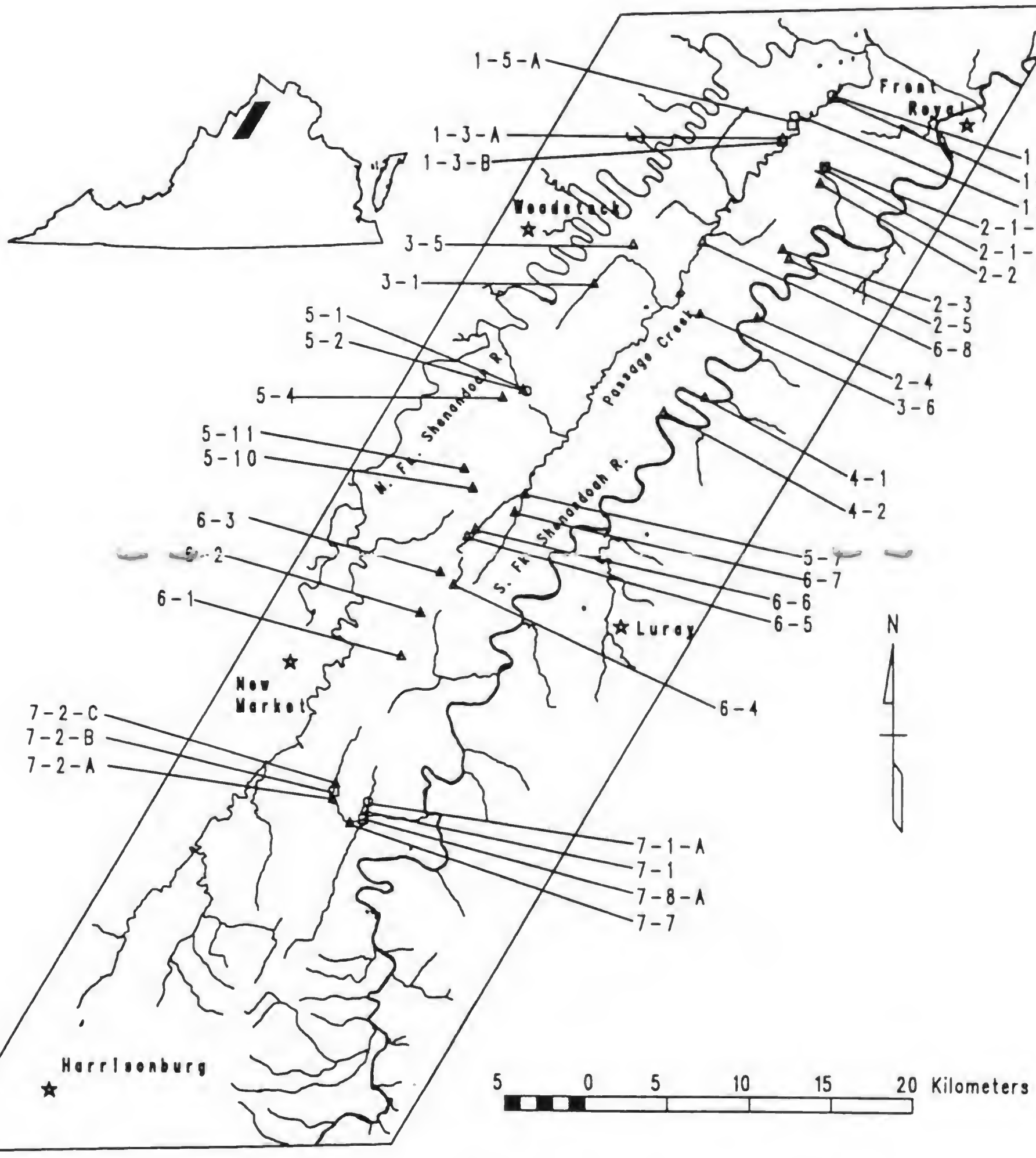
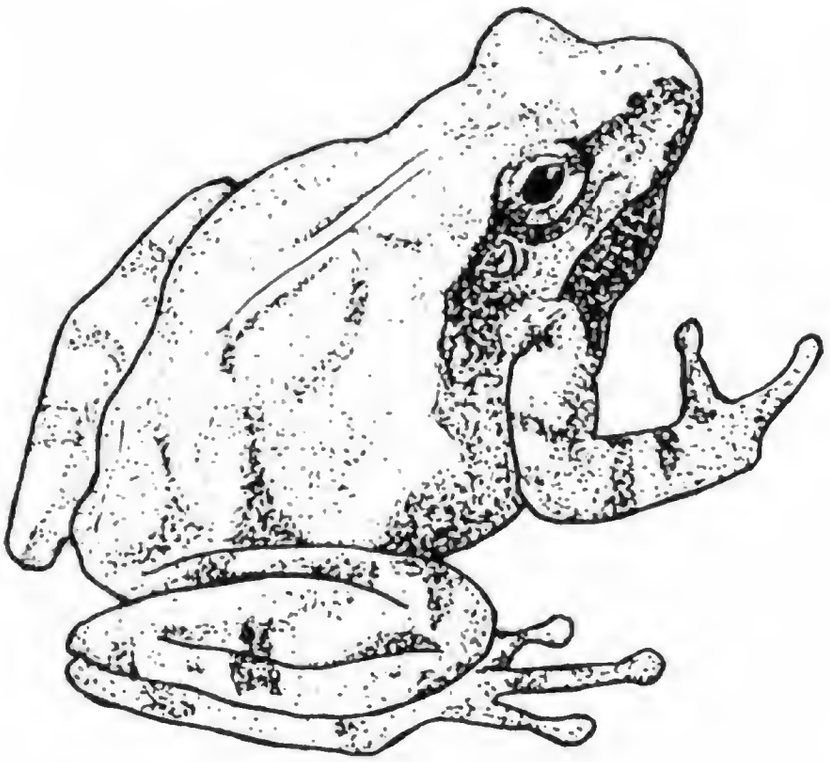


Figure 1. (Pages 14 & 15) Sites surveyed for reptiles and amphibians in the Massanutten region of Page, Warren, and Shenandoah Counties, Virginia. Stars indicate towns and cities. Squares, circles, and triangles represent survey sites.



Pseudacris crucifer
MJF '95

Eastern Narrow-mouthed Toads (Gastrophryne carolinensis) in Mathews County, Virginia

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In Bazuin (1993) I reported the discovery of Eastern Narrow-mouthed Toads in Mathews County, Virginia along Co. Rt. 635 in the western Winter Harbor area. This paper will amplify that earlier report substantially. All records reported below were made during 1996 in Mathews County and all except those otherwise indicated were made by myself. During my visits to Mathews County I stay at the home of my parents, Sybil and John Bazuin, along Co. Rt. 635.

On 13 July the eye of Tropical Storm Bertha passed through western Mathews County and adjacent parts of eastern Gloucester County between 5:00 and 5:30 A.M. (Newport News-Hampton Roads Daily Press on July 14). Bertha brought heavy rain with her; rain and heavy drizzle continued behind the storm on the central Chesapeake Bay coast of Mathews County until 9:20 A.M. I used this opportunity to study the natural history of anurans in eastern and southern parts of Mathews County from 8:43 A.M. until the end of the day. Bertha dumped a total of 9.5 cm. of rain in the western Winter Harbor area.

This deluge created many large, deep pools of standing water in eastern and southern Mathews County and filled the roadside ditches that occur throughout the area. During my observations I found two Eastern Narrow-mouthed Toad choruses from locations along Co. Rt. 635 (up from the one in Bazuin, 1993); one of these was at the spot where I heard the first chorus for the county in 1992. They were calling between at least 1:45 and 9:00 P.M. The original habitat was now a weedy hayfield about 38 cm. tall and the other was a shorter hayfield. In the late morning I also found a moderately loud chorus of Eastern Narrow-mouthed Toads in a marsh of unknown salinity just west of the Chesapeake Bay beach about 1.05 km. north of Garden Creek. Finally, I found one Eastern Narrow-mouthed Toad calling from a flooded roadside ditch containing much Salt Meadow Grass (Spartina patens) at the edge of high salt marsh and near a Loblolly Pine (Pinus taeda) woods at 1:15 P.M. This spot is along Co. Rt. 600 about 0.4 km. from its southern end in the New Point Comfort area at the southern end of the

county. These records make it obvious that this toad has a fairly wide distribution in Mathews County.

On 3 August a torrential downpour of rain associated with a stalled cold front lying to the southeast occurred in Mathews and several adjacent counties. I sat through it in my car near the Chesapeake Bay at the eastern end of Co. Rt. 609, where the heaviest rain fell between 11:47 A.M. and 12:35 P.M. before finally ending completely at 12:48 P.M. Almost 7.6 cm. of rain fell in the western Winter Harbor area during this cloudburst. It also followed at least two similar downpours that had occurred during the previous week.

As I drove back to western Winter Harbor after this deluge I discovered that the storm had caused extensive standing-water flooding in the area. I arrived along Co. Rt. 635 at 1:31 P.M. to find the two Eastern Narrow-mouthed Toad choruses previously heard on 13 July in operation again. Shortly thereafter Don McKelvey told me of a third chorus in that area; in a flooded ditch at the edge of their grassy yard, which lies directly along Winter Harbor and is otherwise bounded by Loblolly Pine woods. He told me that this chorus had begun no more than 15 minutes after the heaviest rain had ended. It is interesting that two of the choruses along Co. Rt. 635 were active on both 13 July and 3 August. That is, a local population of Eastern Narrow-mouthed Toads may chorus more than once a year.

A little later that afternoon it occurred to me that the time was ideal for a more extensive survey of the area for Eastern Narrow-mouthed Toads. Such opportunities come only rarely to a visitor to an area. Therefore, between 3:45 and 5:34 P.M. I drove all of the following county roads, stopping every 0.4 to 0.5 km. to listen and record: all of 635, all of 609 from 635 to the Chesapeake Bay, all of 707, all of 611 from 609 to Winter Harbor, all of 677, all of 611 from 677 to the eastern leg of 610, the eastern leg of 610 (from 611 to 609), and 614 from 609 to the western leg of 610. All of these roads lie between Garden Creek and Winter Harbor. A few other roads in this area were not driven because I knew from experience that they would be submerged by water too deep for me to pass through. The total, one-way road distance of the coverage was 13.7 km. (General Highway Map of Mathews County, Virginia Department of Transportation).

Numerous deep pools of standing water occurred throughout the area and I drove through standing water on the roads in dozens of places. I found a total of 47 Eastern Narrow-mouthed Toad choruses during this survey, fairly regularly distributed throughout the area I covered. None of the choruses appeared to contain more than 20 simultaneously calling animals and some contained five or fewer. Of the choruses for which I could determine the calling habitat, 15 or more were in open, grassy areas (dooryards, hayfields, etc.), three were in clearcuts that ranged in age from about one to more than ten years old, and one each was in an advanced-stage oldfield (grassy but with numerous shrubs and young trees), and a short Soybean field. A few of these choruses were in open, grassy areas near woods edges but none were actually within a woods (I specifically listened for them in woods) or in any of the (salt to brackish) marshes in this area. The toads generally called steadily throughout the survey period but in areas I passed through twice, two choruses were heard on one pass but not the other. In some locations separate choruses were in pools of water less than 90 meters apart. At 9:00 P.M. I walked to one of the choruses along county road 635 and found it to be much larger than it had been during the afternoon.

Between early morning and early afternoon on 4 August I heard no Eastern Narrow-mouthed Toads calling anywhere along the northern edge of Winter Harbor. I decided to repeat the 3 August survey to learn something about the longevity of Eastern Narrow-mouthed Toad choruses after this sort of weather event. Accord-ingly, between 3:45 and 5:21 P.M. I repeated the survey as exactly as I could--driving the same roads in the same order, stopping in the same places, etc. The results this time were six scattered, single Eastern Narrow-mouthed Toads calling and one small chorus. All appeared to be at specific locations where they had been present during the previous afternoon. By this time much of the standing water in the area had drained away, but scattered large pools were still present. I then returned to Co. Rt. 635 by a different route, resulting in the discovery of three additional choruses of Eastern Narrow-mouthed Toads along Co. Rt. 608 (a little west of the survey area) from Rt. 14 at Port Haywood east for 1.9 km. At least two of them were in young clearcuts.

I heard no Eastern Narrow-mouthed Toads calling along Co. Rt. 635 during the second survey but at 9:00 P.M. that evening a moderate chorus was again present, at the same site where I first found them in 1992 and heard them again on 13 July and 3 August.

In summary, the Eastern Narrow-mouthed Toad appears to be uncommon-to-common in east-central Mathews County, where 50 total choruses were found on 3 and 4 August 1996. The species is also fairly widely distributed in Mathews County, occurring at least from east of the town of Diggs south to the New Point Comfort area. Determinable calling sites were mostly in open, grassy habitats (15+), but were also regularly in clearcuts (5) and occasionally in other habitats. None were in woods. Calling on 3 and 4 August 1996 occurred at one location over a period of at least 32 hours following flooding from a rainstorm. Two chorus locations were used both on July 13 and on August 3-4. A driving survey during the afternoon of 3 August 1996 discovered dozens of choruses, but might have been even more productive if it had been performed at night.

Literature Cited

Bazuin, J.B. 1993. *Gastrophryne carlinensis* - Field Notes. *Catesbeiana* 14(1):13.

Fall 1996 Papers

At the Fall 1996 Meeting of the VHS held on October 26, 1996 at Maymont Park in Richmond, VA, the following papers were presented:

Amphibian surveys in the Blue Ridge Mountains: the effects of acid precipitation and floods - Joseph Mitchell

Virginia's threatened and endangered herpetofauna - Mike Pinder

Vernal pool ecology and the Vernal Pool Society of Virginia - Mike Hayslett

FIELD NOTES

Regina septemvittata (Queen Snake). VA: Russell Co., approximately 1.5 km NW of Lebanon (jct. State Route 82 and County Route 640), 12 September 1996, Steven M. Roble and Christopher S. Hobson.

We collected a DOR adult specimen at this site. This is a new county record for this species (Mitchell, 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington, D.C. 352 pp.). It was previously recorded from four (Dickenson, Scott, Washington and Tazewell) of the seven adjoining counties, so its presence here comes as no surprise. The specimen will be donated to the Virginia Museum of Natural History.

Steven M. Roble and Christopher S. Hobson
Virginia Department of Conservation and Recreation
Division of Natural Heritage
1500 E. Main Street, Suite 312
Richmond, VA 23219

Thamnophis sirtalis sirtalis (Eastern Garter Snake) VA: Botetourt Co., Catawba Creek 4 km west of Salisbury Furnace. 5 April 1996.

While on a school field trip, two of my students, Hannah Ennis and Littleberry Darby, found two garter snakes basking on a sunlit bank above Catawba Creek. Both snakes were captured and examined. We found them to be about the same size (420 mm and 430 mm SVL respectively).

We observed that the larger of the two snakes had a noticable bulge in its midsection. After a few minutes of handling, it began to gape, whereupon it regurgitated a large (145mm TL) Northern Red Salamander, *Pseudotriton ruber ruber*. Although the anterior portion of the salamander had been partially digested, it was nonetheless easy to identify as *P.r. ruber*.

No voucher specimens were taken.

William J. Hunley
2042 Lee Hi Road SW
Roanoke, VA 24018

FIELD NOTES

Heterodon platirhinos (Eastern Hognose Snake). VA: Lee Co., approximately 10 km WSW of Jonesville (2.4 km SW jct. County Routes 661 and 758), 10 August 1995, Steven M. Roble and Christopher S. Hobson.

We collected an adult in the westernmost portion of the area of Lee County known as "The Cedars". The habitat consists of red cedar mixed hardwood forest and thin, very rocky (limestone) soils. No sandy habitat was noted in the general area that we surveyed. This is a new county record and the westernmost locality for this species in Virginia (Mitchell, 1994. The Reptiles of Virginia. Smithsonian Institution Press, Washington D.C. 352 pp). It extends the known range in Virginia approximately 115 km SW from a site in Dickenson Co. and about 100 km W from Cleveland, Washington Co. (Mitchell op. cit.). The pattern of this specimen in life was very similar to the lowermost of three color variations depicted on plate 25 in Conant and Collins (1991. A Field Guide to Reptiles and Amphibians of Eastern and Central North America. Third Ed. Houghton Mifflin Co., Boston, MA 450 pp.). The specimen will be donated to the Virginia Museum of Natural History.

Steven M. Roble and Christopher S. Hobson
Virginia Department of Conservation and Recreation
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1500 E. Main Street, Suite 312
Richmond, VA 23219

PRESIDENT'S CORNER

You have probably read the feature article in this issue - Amphibian and Reptile Survey of the Massanutten region by Mike Pinder. This is the result of the 1996 spring VHS survey. The Society has set the goal of trying to survey a different portion of the state on a rotating basis, seeing each site every 4-5 years. We try to pick areas in the different geographic and physiographic regions of the state to survey. This will (1) allow members to see the widest variety of herps possible, and (2) attempt to track the status of herp populations from throughout the state. There has been much concern of late over the possibility of declining amphibian populations. The VHS is attempting to merge the twin goals of education (of our members) with research in these attempts to determine what herps are in the Commonwealth. There should be a host of herps in the southeastern corner of the state not found in other parts; including *Siren lacertina, Amphiuma means, Ambystoma mabeei, Desmognathus auriculatus, Stereochilus marginatus, Acris gryllus, Bufo terrestris, Bufo quercicus, Hyla cinerea, Hyla squirella, Hyla femoralis, Limnaoedus ocularis, Pseudacris brimleyi, Gastrophryne carolinensis, Rana virgatipes, Rana utricularia, Chrysemys scripta, Deirochelys reticularia, Nerodia erythrogaster, Nerodia taxispelota, Virginia striatula, Farancia erytrogramma, Farancia abacura, Lampropeltis triangulum elapsoides* and possibly *Anolis carolinensis*, according to Toby. Be sure to bring your camera (but be careful of what background you choose - note the caution on photographing buildings and antenna in the meeting announcement). There should be plenty of photo opportunities available. The VHS is putting a lot of effort into planning the Spring meeting to insure that there are a lot of high quality sites to visit. You should plan to join us in Chesapeake not only to see a lot of interesting herps, but help with meaningful data collection as well. Mike Pinder's article in this issue of *Catesbeiana* will form the basis of a much larger report which will be submitted to the Commonwealth of Virginia and the National Forest Service, and will represent a growing database of information on the distribution of Virginia's herpetofauna. Come help us to continue this trend.

Paul Sattler, VHS President

Minutes and Treasurer's Report

The Minutes of the Fall 1996 Meeting and Treasurer's Report were not available at press time.

Raffle Committee

Doug Eggleston has agreed to coordinate the VHS efforts to hold a raffle at all the Fall VHS meetings. Please give him the cooperation you can, in time and finances, by helping to provide donated items and in buying raffle tickets. We thank Doug Eggleston of Back Country Insititute, Mike Hayslett of Nearby Nature, Paul Sattler, Frank Toby, the Blue Ridge Herpetological Society and the VHS for providing raffle items for the Fall 1996 meeting.

ANNOUNCEMENT
SPRING 1997 MEETING OF THE
VIRGINIA HERPETOLOGICAL SOCIETY

The Spring 1997 meeting of the VHS will be held 9-11 May, 1997. This field trip meeting will consist of a herp survey of the Naval Security Group Activity Northwest facility in Chesapeake, Virginia.

Meeting Place: Super 8 Motel in Suffolk, VA. Lodging costs will be $40.52 with tax per night for a room with 2 beds. We should be able to squeeze some extra people per room on sleeping bags to help defray costs. We have a block of rooms reserved so please call 757-925-0992 for reservations as mentioned in the Newsletter.

Schedule:

Friday, May 9

7:30 - 9:00	Business Meeting followed by a social time with a slide presentation and discussions about what we may find in Southeastern VA, at the Super 8 Motel in Suffolk.
9:00 - ?	Road cruising for herps?

Saturday, May 10

9:00 am - 6:00 pm	Naval Base herp survey. Meet at the Environmental Education Center on the Naval Base (see map and directions below).
8:00 - ?	Report of field activity and discussion of day's events. All groups must turn in data sheets.
9:00 - ?	More road cruising?

Sunday, May 11

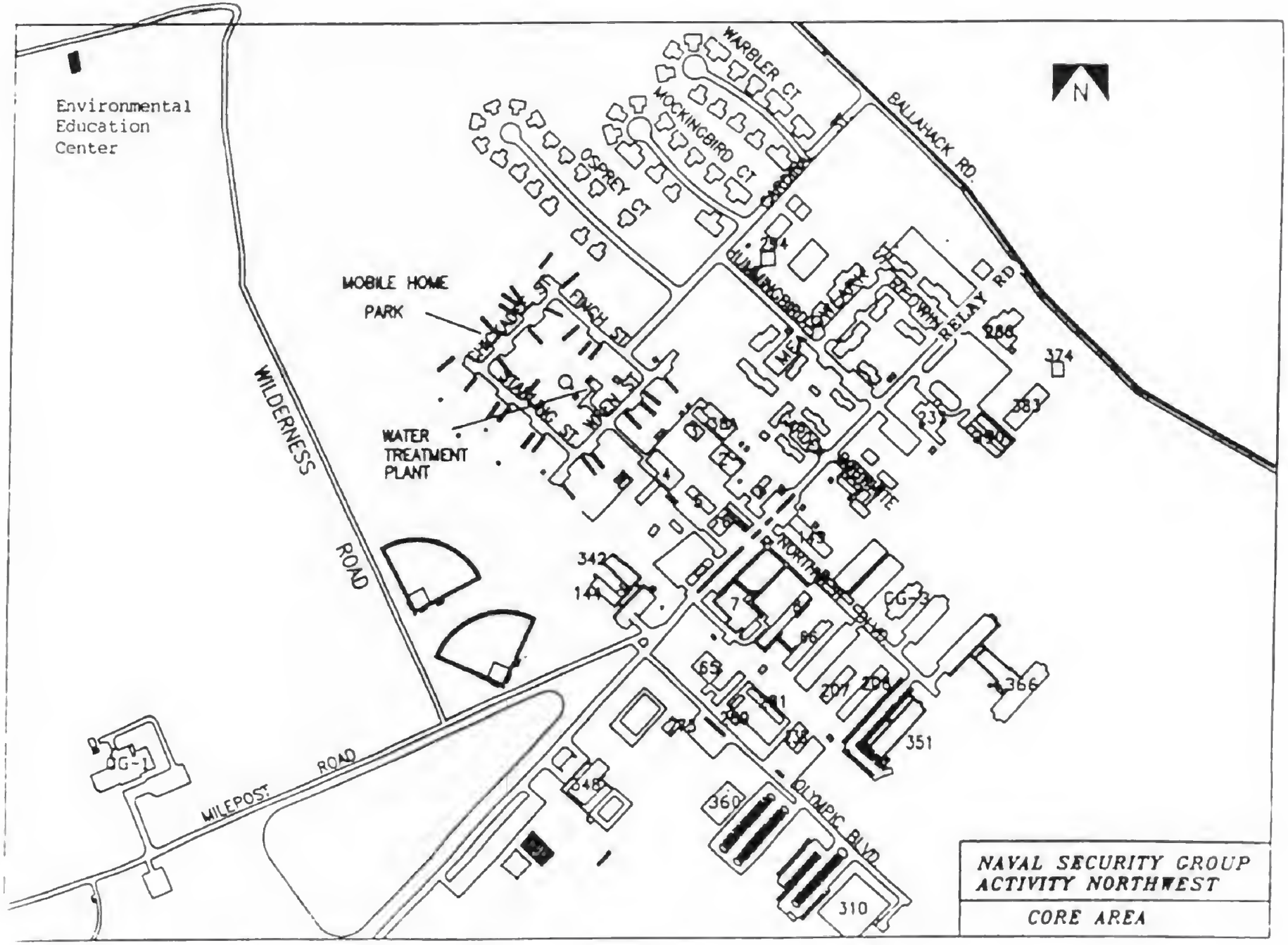
11:00 am	Check out, return any specimens to collection sites, and finish any remaining surveys.

This is a field trip meeting, so wear your hiking clothes and be prepared for wet and cool weather, rain or sunny weather. Bring a flashlight, camera, snake tongs, snake sticks, snake bags, snakeproof leggings if you have them (we will be in prime canebrake rattlesnake, water moccasin, and copperhead areas) dip nets, hand nets, and wading equipment. Bring coolers, field guides, suntan lotion and tick strength bug repellent. Each team should have a first aid kit.

On Friday night, we will have a social and provide snacks and drinks. We will have a slide presentation on the herps of southeastern Virginia and discuss Saturday's sampling strategy. Later on, those who wish to road cruise for herps may do so. Saturday will be a full field day, surveying the Naval Base. Remember that our no collecting policy will be in effect. Also, any canebrake rattlesnakes discovered must be left undisturbed (this is Al Savitsky's research site as well). Also remember that this is a Naval Base, and while herps may be photographed, the buildings and antennas may not. Anyone found photographing buildings or antennas is subject to having their camera confiscated. Saturday night will gather back at the motel, freshen up, eat, and discuss our survey results.

Directions to the Suffolk Super 8 Motel:
From I-460 stay on Business 460 and do NOT take the bypass. Business 460 becomes Main Street in Suffolk and the Motel is at 633 N. Main Street. The Super 8 is near the Holliday Inn and on the left side of Business 460/Main Street. The same phone number for reservations (757-925-0992) can be used for directions as well. There are a multitude of fast food restaurants around the Super 8 Motel.

Directions to the Naval Security Group Activity (NSGA) Northwest:
From I-64, take the exit labeled Battlefield Blvd. South (Hwy 168). You will take Battlefield Blvd. south for approximately 4 miles and will look for the exit to the right that says to Nags Head, Manteo (Hwy 168 bypass). This will bypass the traffic in Great Bridge and will throw you back out heading south on 168. From that point it is approximately fifteen miles to a stoplight at the corner of Ballahack and Hwy 168. Turn right on Ballahack and NSGA Northwest is approximately 3 miles down the road on the left. If you pass the Ballahack turn you will shortly find yourself in North Carolina. From Ballahack, you will turn left onto Relay road (the road just past the church). The speed limit is 15 mph at this point and is strictly enforced. At the fork in the road, take the right fork onto Milepost Road. Just after the baseball field on the right, turn right on Wilderness Road. After a left curve in the road, the Environmental Education Center is on the left.


Environmental
Education
Center
WARBLER CT
MOCKINGBIRD CT
OSPREY CT
BALLAHACK RD.
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MOBILE HOME
PARK
WATER
TREATMENT
PLANT
WILDERNESS
ROAD
RELAY RD
NORTHWEST BLVD
MILEPOST
ROAD
OLYMPIC BLVD
342
144
63
366
351
360
310
NAVAL SECURITY GROUP
ACTIVITY NORTHWEST
CORE AREA

MEMBERSHIP APPLICATION

I wish to _____ initiate _____ renew membership in the Virginia Herpetological Society for the year 19_____.

___ I wish only to receive a membership list. Enclosed is $1.00 to cover the cost.

Name _____

Address _____

_____ Phone _____

Dues Category: ___ Regular ___ Family ___ Under 18 ___ Life
($10.00) ($12.50) ($6.00) ($150)

Interests: ___ Reptiles ___ Amphibians ___ Captive Husbandry
___ Distribution ___ Research
___ Specifically _____

Make checks payable to the Virginia Herpetological Society and send to the treasurer: Michael S. Hayslett, 923 Euclid Ave., Lynchburg, VA 24501

Field Notes

This section provides a means of publishing natural history information on Virginia's amphibians and reptiles that does not lend itself to full-length articles. Observations on geographic distribution, ecology, reproduction, phenology, behavior, and other areas are welcomed. Reports can be on single species or fauna from selected areas, such as a state park or county. The format of the reports is TITLE (species or area), COUNTY AND LOCATION, DATE OF OBSERVATION, OBSERVERS, DATA AND OBSERVATIONS. Names and addresses of authors should appear one line below the report. Consult published notes or the editor if your information does not readily fit this format.

If the note contains information on geographic distribution, a voucher specimen or color slide should be sent for verification and deposited in a permanent museum or sent to the Virginia Herpetological Society. Species identification for observational records should be verified by a second person.

The correct citation format: Tobey, F.J. 1989. Field notes: *Coluber constrictor constrictor*. *Catesbeiana* 9(2):35.

Herpetological Artwork

Herpetological artwork is welcomed. If the artwork has been published elsewhere, we will need to obtain copyright before we can use it in an issue. We need drawings and encourage members to send us anything appropriate, especially their own work.